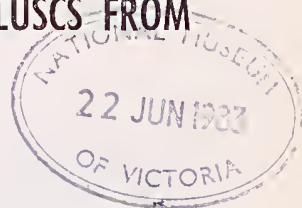


SOME SILURO-DEVONIAN ROSTROCONCH MOLLUSCS FROM SOUTH-EASTERN AUSTRALIA

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ABSTRACT

Nine rostroconch molluscs from Silurian and Devonian sediments in New South Wales and Victoria are described. In addition to the well known genus *Conocardium*, the genera *Hippocardia* and *?Bransonia* are recorded for the first time.

INTRODUCTION

The unusual morphology and enigmatic phylogentic relationship of *Conocardium* and similar forms which are now assigned to the new molluscan class Rostroconchia (Pojeta *et al.*, 1972) has retarded their study internationally. Within Australia, Silurian and Devonian forms of the class have been traditionally assigned to the 'catch-all' genus '*Conocardium*'. Typically discussion of these forms has been as isolated occurrences within a much larger fauna such as that from near Yass by de Koninck (1876), from the Lilydale Limestone by Cresswell (1893) or from the Toongabbie Limestone, Marble Creek by Talent and Phillip (1956).

The only major attempt to review the genus '*Conocardium*' in Australia was that by Fletcher (1943). Not only did he review the forms of the genus known then from the Silurian, Devonian and Permian, but he also described some additional forms. In this discussion of the genus '*Conocardium*', Fletcher accepted the prevailing view that it was an aberrant form of bivalve.

It is only in recent years that the affinities of the conocardiums have been recognised and this has resulted in the establishment of a new molluscan class Rostroconchia (Pojeta *et al.*, 1972, Pojeta and Runnegar, 1976). In view of this fundamental reconsideration of what to then had been a number of poorly known and enigmatic fossils, it is considered an appropriate time to review some of the Siluro-Devonian rostroconch molluscs from south-eastern Australia, and in particular those associated with significant gastropod faunas.

The reassessment of the rostroconchs by Pojeta and Runnegar (1976) saw the establishment of a number of new genera as well as a more precise diagnosis for the already existing genera, particularly such 'catch-all' forms as *Conocardium*. As is to be expected, a number of forms from south-eastern Australia previously attributed to the genus *Conocardium* are now assigned to other genera.

The distribution of rostroconchs in the limestones of south-eastern Australia during the Siluro-Devonian is markedly different to that of gastropods and bivalves. For while the latter classes are represented by a number of genera in each limestone, the rostroconchs are typically represented by only one species. In the only instances to date where more than one species has been described from the one locality, it can be shown that the two or more species described are in fact one and the same, e.g. Lilydale and Lake Bathurst. Although a number of taxa and localities are represented by only a few specimens, the same lack of diversity is also found in those localities from which large samples are available, e.g. Taemas or Lilydale. However, this is not to imply that each species is confined to only one location for it is likely that the Emsian *Conocardium* sp. from Tarago is the same as *Conocardium* sp. from Taemas while *Hippocardia angelicum* is known from limestones at both Marble Creek and Deep Creek.

In this study, the following abbreviations have been used :
P., National Museum of Victoria; F., Australian Museum, Sydney; A.N.U., Geology Department, Australian National University.

All measurements are in millimetres and the following abbreviations relating to these measurements have been used : Ht., height; L., length; * specimen incomplete.

Superfamily CONOCARDIACEA Miller, 1889
Family CONOCARDIIDAE Miller, 1889
Genus CONOCARDIUM Bronn, 1835

Conocardium sp.
Plate 1, figures 1-4

DESCRIPTION : Small to medium rostroconch with narrow elongate rostrum that projects well beyond posterior margin; dorsal margin of rostrum and snout straight; rostral clefts present; beak subsentral with snout and rostrum being of similar length; body of shell carinate posteriorly; anterior gape present extends posteriorly for about half length of snout as narrow slit; marginal denticles developed in gape; posterior gape confined to aperture of rostrum; longitudinal shelves developed; fine ribbing on snout and courser ribbing on body; degree of development of ribbing variable; apart from coarseness of ribbing, body and snout regions not separated by change in sculpture form; ventral commissures of body fit tightly together; well developed co-marginal sculpture developed over entire valve surface, giving rise to reticulate appearance; strong submerged ribs present; protoconch smooth limpet shaped and separated by shallow concave areas from bivalves on small specimens.

DIMENSIONS :

		Ht.	L.
ANU 36845		8.1	11.2
ANU 36846		7.4	10.0*
ANU 36847		5.2	6.7*
ANU 36848		3.2	4.3

LOCATION OF TYPES : Geology Department, Australian National University. Figured specimens ANU 36845, ANU 36846 and ANU 36847.

TYPE LOCALITY : "Receptaculites" Limestone, Taemas near Yass, New South Wales.

STRATIGRAPHIC RANGE : The "Receptaculites" Limestone is considered by Strusz (1972) to be Emsian.

MATERIAL : Figured specimen and 48 other specimens.

DISCUSSION : De Koninck (1876) described two shells from a black argillaceous limestone in the Yass district as *C. sowerbyi*. In addition he synonymized with this species two other species from Europe *Cardium aliforme* (var.) Sowerby and *Pleurorhynchus aliformae* Phillips. Unfortunately de Koninck did not illustrate his new species, the specimens of which are thought to have been destroyed together with many other of his specimens in the Garden Palace fire of 1882.

PLATE 1

- Figure 1 *Conocardium* sp. ANU 36845, x 3. Left lateral view.
 2 *Conocardium* sp. ANU 36846, x 3. Dorsal view showing rostral clefts.
 3 *Conocardium* sp. ANU 36846, x 4. Posteroventral view.
 4 *Conocardium* sp. ANU 36847, x 4. Posterior view.
 5 *Conocardium* sp. F.40891, x 4. Left lateral view.
 6 ?*Conocardium davidis* Dun. F.40820, Lectotype, x 3. Left lateral view.
 7 ?*Conocardium davidis* Dun. F.40820, Lectotype, x 3. Right lateral view.
 8 ?*Conocardium davidis* Dun. F.40821, paralectotype, x 3. Right lateral view.
 9 ?*Bransonia* sp. P65864a, x 3. Right lateral view.
 10 ?*Bransonia* sp. P65865, x 5. Posteroventral view.
 11 ?*Bransonia* sp. P65864b, x 3. Right lateral view.
 12 ?*Bransonia* sp. P65864c, x 5. Right lateral view.
 13 *Hippocardia costatus* (Cresswell). P.910, holotype, x 2. Right lateral view.
 14 *Hippocardia costatus* (Cresswell). P.911, x 3. Right lateral view.
 15 *Hippocardia costatus* (Cresswell). P65872, hypotype, x 1.5. Left lateral view showing two sculptural types.
 16 *Hippocardia costatus* (Cresswell). P65872, hypotype, x 3. Right lateral view.
 17 *Hippocardia costatus* (Cresswell). P65872, hypotype, x 3. Left lateral view showing two sculptural types.
 18 *Hippocardia costatus* (Cresswell). P65874, hypotype, x 3. Left lateral view showing two sculptural types.
 19 *Hippocardia costatus* (Cresswell). P65870, hypotype, x 3. Posterior view.
 20 *Hippocardia costatus* (Cresswell). P65870, hypotype, x 4. Right lateral view showing hood.
 21 *Hippocardia costatus* (Cresswell). P65871, hypotype, x 6. Posterior view showing protoconch.
 22-23 *Hippocardia costatus* (Cresswell). P65867, hypotype, x 5. Dorsal view showing protoconch.
 24 *Hippocardia costatus* (Cresswell). P65867, hypotype, x 9. Dorsal view showing protoconch.



Comparisons of the material from Taemas and de Koninck's species is limited. In general appearance they resemble each other, being of similar dimensions, having numerous concentric ridges on the posterior surface of the body and having numerous regular ridges on the body and the snout. However, there is insufficient information to determine satisfactorily if they are one and the same species. As only one species of rostroconch has been identified for Taemas in this study, and they typically have a low taxonomic diversity in south-eastern Australia, these specimens may well be one and the same as de Koninck's specimen.

In his revision of *Conocardium sowerbyi*, Fletcher (1943) considered that *Conocardium* sp., ind. described by Etheridge (1881) from Bungaralaby near Lake Bathurst, New South Wales, was 'identical' with the species from Yass. On the basis of Etheridge's description and illustration, it is not possible to usefully compare this specimen with either de Koninck's description or the material currently available from Taemas other than to note that all would appear to have a similar general shape with prominent ribbing.

In addition Fletcher (1943) considered that a specimen F.40891 from Tarago, near Lake Bathurst, could also be assigned to de Koninck's species *C. sowerbyi*. Again the same limitations imposed by the inadequacy of de Koninck's original description exist for comparison with this latter specimen.

Conocardium sp.

Plate 1, figure 5

1943 *Conocardium sowerbyi* de Koninck; Fletcher, p.236, pl. 13, figs. 17-18, in-part.

DESCRIPTION : Small squat rostroconch with short dorsal margin and numerous fine ribs; rostrum incomplete; dorsal margin of rostrum and snout straight; beak about sub-central; body of shell carinate posteriorly, degree of development of anterior and posterior gapes not known; body and snout not separated by any change in sculpture; ribbing not complete across entire rostrum surface; finer co-marginal sculpture developed particularly on rostrum.

DIMENSIONS :

	Ht.	L.
F.40891	6.9*	8.9

LOCATION OF TYPES : Australian Museum. Figured specimen F.40891.

TYPE LOCALITY : Tarago, near Lake Bathurst, New South Wales.

STRATIGRAPHIC RANGE : The limestones of Tarago are considered by Strusz (1972) to be Emsian.

MATERIAL : Figured specimen.

DISCUSSION : *Conocardium* sp. from the "Receptaculites" Limestone, Taemas, exhibits considerable morphological variation, particularly with respect to the degree of development of the radial ribbing. Amongst these variants are forms that are very similar in appearance to the Tarago specimen, i.e. with numerous fine radial ribs. Thus it is possible that both these forms might be one and the same but because of the limited material available from Tarago and its incomplete preservation such an assumption cannot be confirmed. For similar reasons the assignment of the Tarago specimen to de Koninck's species *C. sowerbyi* which is itself only poorly described cannot be confirmed.

?*Conocardium davidis* Dun

Plate 1, figures 6-8

1907 *Conocardium davidis* Dun, p.268, pl. 40, figs. 6, 6a.

1943 *Conocardium davidis* Dun, Fletcher, p.235, pl. 13, figs. 5-6.

1971 *Conocardium davidis* Dun, Fletcher, p.66.

DESCRIPTION : Small to medium rostroconch with fine co-marginal sculpture developed over the entire shell surface; degree of elongation of rostrum unknown; dorsal margin of rostrum and snout appear to be straight; body of shell rounded posteriorly; anterior gape

present, extends posteriorly for over half length of snout as a narrow slit; presence or absence of marginal denticles unknown; posterior gape characteristics not known; shell with fine ribbing on snout and coarser ribbing on body; body further differentiated from snout by presence of co-marginal sculpture between ribs; ventral commissure of body fits tightly together; protoconch unknown.

DIMENSIONS :

	Ht.	L.
F.40820	7.6*	10.3*
F.40821	6.0	9.2

LOCATION OF TYPES : Australian Museum. Lectotype, F.40820. Paralectotype, F.40821.

TYPE LOCALITY : Oakey Creek, Parish of Barton, near Orange, New South Wales.

STRATIGRAPHIC RANGE : The limestones of the Panura Group which occur at Oakey Creek are considered to be Llandovery by Talent *et al.* (1975).

MATERIAL : Lectotype and paralectotype.

DISCUSSION : Both the lectotype and paralectotype are only partially preserved and in particular much of the rostrum on both is missing. Thus comparison with the other younger rostroconchs is difficult.

Family BRANSONIIDAE Pojeta and Runnegar, 1976

Genus BRANSONIA Pojeta and Runnegar, 1976

?Bransonia sp.
Plate 1, figures 9-12

DESCRIPTION : Small to medium rostroconch with short snout that does not project beyond posterior margin; dorsal margin of snout and rostrum straight; anteriorly elongate with snout being longer than rostrum; beak subcentral; body of shell carinate posteriorly; anterior gape present; posterior gape unknown; shell externally with coarse radial ribs except on antero-dorsal area of the snout; body and snout regions not separated by any change in sculpture; ventral commissure of the body fits tightly together; variable but typically well developed lamellose co-marginal sculpture developed over entire shell surface giving rise to distinctive reticulate appearance; protoconch unknown.

LOCATION OF TYPES : National Museum of Victoria. Figured specimens P65864a, P65864b, P65864c and P65865.

TYPE LOCALITY : Bell Point Limestone, Cape Liptrap Peninsula, Victoria.

STRATIGRAPHIC RANGE : The Bell Point Limestone is considered by Strusz (1972) to be Early Emsian.

MATERIAL : Figured specimens and 10 other specimens.

DISCUSSION : The structural setting of the Bell Point Limestone and the effect it has had on the nature of preservation of fossils has been noted previously (Tassell 1978). As with the other fossils, the rostroconchs have been crushed, fragmented and distorted. Thus the dimensions of these molluscs which range up to 6mm in length and 7mm in height can only be considered as a general indication of size.

Lindner (1953) first recorded the presence of rostroconchs in the Bell Point Limestone when he noted that *Conocardium* together with ostracods occurred in a grey silty limestone bed. As many of the specimens available in this study are associated with ostracods in a silty limestone, it is considered that his *Conocardium* may well be *?Bransonia* sp.

Family HIPPOCARDIIDAE Pojeta and Runnegar, 1976

Genus HIPPOCARDIA Brown, 1843

Hippocardia costatus (Cresswell)

Plate 1, figures 13-24

- 1893 *Pleurohynchus costatus* Cresswell, p.43, pl. 9, fig. 5.
 1893 *Pleurohynchus bellulus* Cresswell, p.43, pl. 9, fig. 6.
 1908 *Conocardium costatum* (Cresswell) Chapman, p.45.
 1908 *Conocardium bellulum* (Cresswell) Chapman, p.45.
 1913 *Conocardium costatum* (Cresswell) Chapman, p.226.
 1913 *Conocardium bellulum* (Cresswell) Chapman, p.226.
 1920 *Conocardium bellulum* (Cresswell) Chapman, p.191.
 1943 *Conocardium costatum* (Cresswell) Fletcher, p.234, pl. 13, figs. 1-2.
 1943 *Conocardium bellulum* (Cresswell) Fletcher, p.234, pl. 13, figs. 3-4.
 1956 *Conocardium cresswelli* Talent & Philip, p.68.

DESCRIPTION: Small to medium rostroconch with well developed short rostrum and single small arcuate hood; anteriorly elongate with snout being larger than rostrum; line near hinge; beak subcentral; posterior of body rounded to carinate; prominent anterior gape; posterior gape reduced to aperture of rostrum; ventral gape absent; shell externally, fully radially ribbed; body and snout regions not separated by any change in sculpture; ventral commissures of body fit flush together; ventral commissures of rostrum serrated; variable fine to lamellose co-marginal sculpture over entire shell surface typically developed; strong submerged ribs present; smooth limpet shaped protoconch separated from dissoconch by shallow concave areas present on smaller specimens.

DIMENSIONS:

	Ht.	L.
P65866	4.7	5.4
P65867	3.8	5.8
P65868	3.6	5.1
P65869	5.2	4.7*
P65870	11.6	12.1*
P65871	5.6	6.7
P65872	9.1	10.0
P65873	18.7	19.4

- LOCATION OF TYPES: 1. *Pleurohynchus costatus* National Museum of Victoria, Holotype, P910.
 2. *Pleurohynchus bellulum* National Museum of Victoria, Holotype, P911.
 3. *Hippocardia costatus* National Museum of Victoria, Hypotypes, P65867, P65870, P65871, P65872 and P65873.

TYPE LOCALITY: Lilydale Limestone, Lilydale, Victoria.

STRATIGRAPHIC RANGE: The Lilydale Limestone is considered by Strusz (1972) to be Late Siegenian.

MATERIAL: Holotype, hypotypes and 21 other specimens.

DISCUSSION: Cresswell (1893) distinguished *Pleurohynchus bellulus* from *Pleurohynchus costatus* by its smaller size, the body of the shell being more oblique to the hinge-line, ribs crossed with striae and 'the valves having a distinctly fenestrated appearance at the posterior end'. In the larger sample of specimens available for this study, it is clear that all these features are gradual from the smallest specimens 3.2mm in length to the largest specimens 18mm in length and amongst individuals of similar size.

Certainly the finer striae considered characteristic of *P. bellulus* can be found on shells more than 11mm in length. More importantly Cresswell's fine striae are confined to the outer shell layer of the valve. Frequently this outer layer has not been preserved, leaving only the inner more strongly and coarsely ribbed shell layer. In such specimens

any evidence for the presence of the hood which is confined to the outermost shell layer of *Hippocardia* is also lacking. Specimen P65872 on which part of the shell retains the outermost layer with its fine striae overlying the strongly ribbed inner layer, clearly illustrates the association of the two sculptural features (see plate 1, figure 15).

Subsequent authors when reviewing the species of rostroconch molluscs from the Lillydale Limestone continued to accept Cresswell's two species. Talent & Philip (1956) noted that Cresswell's trivial name *P. bellulus* was in fact preoccupied by *C. bellulum* Barande (1881) and so proposed that a new species *C. cresswelli* be established for the Lillydale species. As *Hippocardia costatus* (Cresswell) and *H. bellulus* (Cresswell) are in fact one and the same, this proposal is no longer necessary.

Chapman (1908) also recorded the presence of *C. bellulum* in a mudstone near the junction of the Woori Yallock Creek and the Yarra River, Geological Survey of Victoria, locality B23. Re-examination of this specimen P7932 reveals that it is a longitudinal section through an internal and external mould of a bivalved form at about the 'umbo'. The size, general shape and the presence of ribs is consistent with a '*Conocardium*' like form. However, its assignment to either this species or genus on the basis of such a single specimen is it is felt not justified.

Hippocardia angelicum (Talent & Philip)

Plate 2, figures 1-3

1908 *Conocardium bellulum* (Cresswell) Chapman, p.45 in part.

1913 *Conocardium bellulum* (Cresswell) Chapman, p.226 in part.

1920 *Conocardium bellulum* (Cresswell) Chapman, p.191.

1956 *Conocardium angelicum* Talent & Philip, p.67, pl. vii, figs. 23-25.

DESCRIPTION : Small to medium rostroconch with well developed short rostrum that projects beyond the posterior margin and a single prominent arcuate hood; anteriorly elongate with snout being longer than rostrum; snout noticeably constricted; beak curved sub-central; body of shell carinate posteriorly; prominent anterior gape; posterior gape apparently reduced to aperture of rostrum; shelly externally fully ribbed; body and snout separated by change in degree of development of ribbing; ventral commissure of body fits flushly together; typically fine lamellose co-marginal sculpture developed over entire shell surface; submerged ribs developed; protoconch unknown.

DIMENSIONS :

	Ht.	L.
P65875	8.9	9.4*
P65876	4.0	5.4
P65877	6.3	8.1*
P65878	4.9	8.9
P2352	4.5	6.0*

LOCATION OF TYPES : University of Melbourne, Geology Department. Holotype M.U.G.D. 2277. Paratype M.U.G.D. 2278. National Museum of Victoria, Hypotypes.

TYPE LOCALITY : Toongabbie Limestone, upper quarry, Marble Creek, Victoria.

DISTRIBUTION : Toongabbie Limestone and Deep Creek Limestone.

STRATIGRAPHIC RANGE : The limestones at Toongabbie and Deep Creek were considered by Strusz (1972) to be Late Siegenian.

MATERIAL : Holotype, paratype, hypotypes and twelve other specimens.

DISCUSSION : The limestones at Marble Creek and Deep Creek on the eastern side of the Walhalla synclinalorium are generally considered to be of the same age (Strusz, 1972). Certainly the gastropod faunas from both these limestones evidence some similarity with the distinctive *Platyceras* (*Visitor*) *cylindricum* being common to both (Tassell, 1977). Thus it is not unexpected to find the same rostroconch mollusc occurring in both limestones as well.

?Hippocardia mundulum (Fletcher)

Plate 2, figures 4-7

1943 *Conocardium mundulum* Fletcher, p.235, pl. 13, figs. 7-9.1943 *Conocardium abscissum* Fletcher, p.237, pl. 13, fig. 10.1943 *Conocardium laseroni* Fletcher, p.237, pl. 13, figs. 11-13.

DESCRIPTION : Small to medium rostroconch with prominent ribbing developed over entire surface and what appears to be a single arcuate hood; rostrum incomplete, degree of elongation unknown; dorsal margins of rostrum and snout straight; body of shell rounded anteriorly; gape extends posteriorly for about half the length of the snout as a narrow slit; no suggestion of presence of longitudinal shelves; posterior gape if present confined to aperture of rostrum; shell externally with prominent radial ribbing over entire surface but which is coarsest on body; ventral commissures of body fit tightly together; co-marginal sculpture developed over entire surface; typically sculpture quite fine but between strong ribs on body tends to be coarser; protoconch unknown.

DIMENSIONS :

	Ht.	L.
F.30189	6.7	9.0
F.39761	10.0	—
F.30160	10.0*	13.1

LOCATION OF TYPES : 1. *Conocardium mundulum* Australian Museum, Holotype F.30189.
 2. *Conocardium abscissum* Australian Museum, Holotype F.39761.
 3. *Conocardium laseroni* Australian Museum, Holotype F.30160.

TYPE LOCALITY : Limestone at Lake Bathurst Railway Station, near Goulburn New South Wales.

STRATIGRAPHIC RANGE : The limestones near Lake Bathurst Railway Station are considered by Strusz (1972) to be Late Emsian.

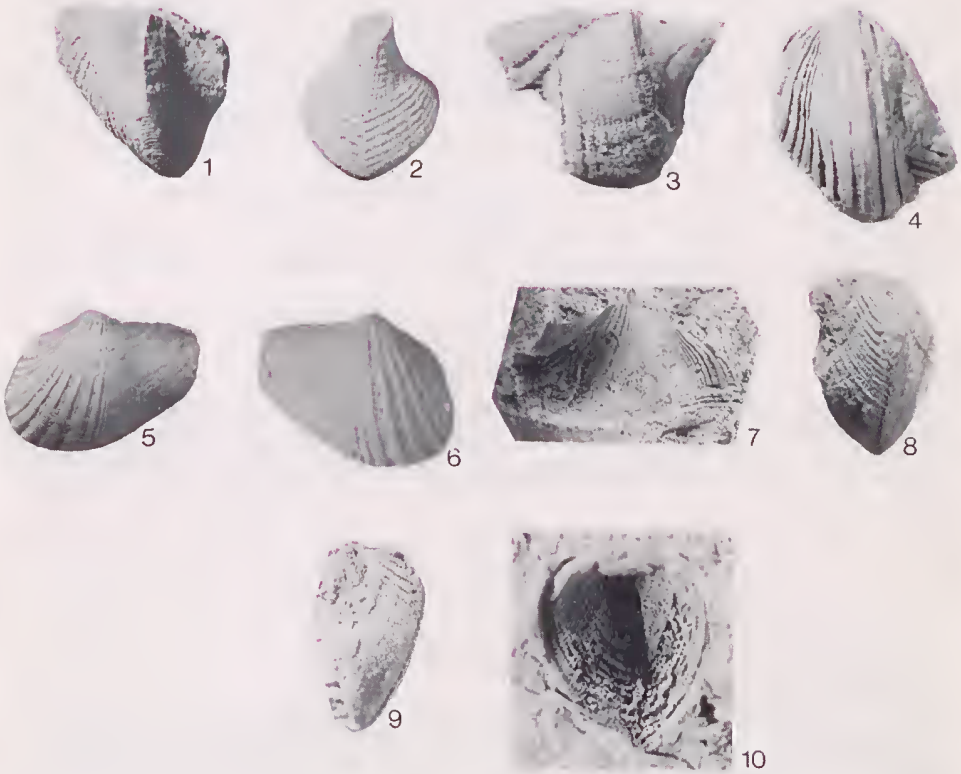
DISCUSSION : Fletcher (1943) described three species of *Conocardium* namely *C. mundulum*, *C. abscissum* and *C. laseroni* from the limestones near Lake Bathurst Railway Station on the basis of three specimens. Of these the holotype of *C. mundulum* is by far the most complete and best preserved. It possesses strong distinctive ribbing over the shell exterior and obvious co-marginal sculptural elements. The specimen is considerably smaller than either of the other two specimens.

The holotype of *C. abscissum* which is crushed, broken and only partly preserved is nearly twice the size of *C. mundulum*. Again the prominent strong ribbing, particularly on the body, is the most distinctive feature. It is on the basis of sculpture and body shape that Fletcher distinguished it from either of the other species of *Conocardium* found at Lake Bathurst. Certainly the body of *C. abscissum* is more carinate posteriorly. However, with the limited number of specimens available the degree of morphological variation in any of the species is unknown.

Frequently the outer shell layer of rostroconchs is not preserved, leaving only the thicker, inner layer. Examples of this include specimens of *H. costatus* (Cresswell) from the Lilydale Limestone and *Conocardium* sp. from the "Receptaculites" Limestone. In both these instances while the ribbing of the outer layer can also be seen in the inner layer the fine co-marginal sculpture of the outer layer is typically represented only as lamel-

PLATE 2

- Figure 1-2 *Hippocardia angelicum* (Talent & Philip). P65875, hypotype, x 2.5. Right lateral view.
 3 *Hippocardia angelicum* (Talent & Philip). P65876, hypotype, x 7. Left lateral view.
 4 *?Hippocardia mundulum* (Fletcher). F.39761, hypotype, x 3.5.
 5 *?Hippocardia mundulum* (Fletcher). F.30189, holotype, x 3. Right lateral view.
 6 *?Hippocardia mundulum* (Fletcher). F.30189, holotype, x 4. Left lateral view.
 7 *?Hippocardia mundulum* (Fletcher). F.301160, holotype, x 2.5 (approximately).
 8 *?Hippocardia* sp. P65879, x 5. Posterior view.
 9 *?Hippocardia* sp. P65879, x 5. Left lateral view.
 10 *?Hippocardia* sp. P.13973, x 9.



lations within the inner layers. Thus the effect is of a shell sculpture dominated by the ribbing as is found on the specimen of *C. abscissum*. The lack of a hood in this specimen is also a consequence of the absence of the outer shell layer for this structure is confined to this layer.

Conocardium laseroni is represented by a single external mould, the inner mould having been misplaced before Fletcher (1943) described the species. Although incomplete, there is sufficient of the mould remaining to indicate that the shell was about the same height as *C. abscissum*.

Fletcher noted that *C. laseroni* together with *C. abscissum* and *C. mundulum* were all characterised by the development of course ribs on the body. However, the former species could be distinguished from the other two forms by the 'position of the anterior keel' and 'the deeply recessed cardiform slopes'. Although the rostrum of *C. laseroni* is largely missing there does not appear to be any appreciable difference between the location of the 'keel' or hood on this specimen or that of *C. mundulum*. Similarly even though the rostrum of *C. laseroni* is markedly concave while only that area close to the umbo of *C. mundulum* is concave the significance of such a comparison is limited because of the lack of knowledge about the variability of both these forms. But it is relevant to note that such variation is to be found on *Conocardium* sp. from Taemas. The sculpture of both these forms composed of strong radiating ribs and finer co-marginal elements is similar.

Only three specimens of rostroconchs are known from limestones near Lake Bathurst Railway Station and all these are incomplete. In view of this it is considered that until further material is available for study, it would be of advantage to consider them as belonging to the one species.

?Hippocardia sp.

Plate 2, figures 8-9

DESCRIPTION : Small to medium rostroconch with probably a single arcuate hood; anterior of shell unknown; body of shell carinate posteriorly; anterior gape unknown; posterior gape reduced to aperture of rostrum; shell ribbed externally; ventral commissure of body fits flushly together; fine lamellose co-marginal sculpture developed.

DIMENSIONS :

	Ht.	L.
P65879	6.5	—

TYPE LOCALITY : Seville Limestone, near Melbourne, Victoria.

STRATIGRAPHIC RANGE : The Seville Limestone occurs within the Lower Devonian Hume-vale Formation.

DISCUSSION : The crushed incomplete nature of these moulds prevents a detailed description. However, they are similar in size to *H. costatus* from the Lilydale Limestone. It is possible that the indeterminate form of '*Conocardium*' reported by Chapman (1908) as coming from near the junction of Woori Yalloch Creek and the Yarra River is the same as these specimens.

?Hippocardia sp.

Plate 2, figure 10

1920 *Conocardium bellulum* (Cresswell) Chapman, pp. 179, 191.

DESCRIPTION : Small rostroconch with possibly a single arcuate hood; anterior of shell unknown; linear hinge; body of shell carinate posteriorly; posterior gape probably confined to aperture of rostrum; ventral gape absent; shell externally ribbed; strong submerged ribs present; ventral commissure of body fits flushly together; fine to lamellose co-marginal sculpture over entire shell surface.

DIMENSIONS :

	Ht.	L.
P.13973	4.4	—

LOCATION OF TYPES : National Museum of Victoria. Mentioned specimen P.13973.

TYPE LOCALITY : Mitta Mitta River, north-eastern Victoria.

STRATIGRAPHIC RANGE : The fossiliferous siltstones in the Mitta Mitta River area are assigned to the Cowombat Formation and are considered by Talent *et al.* (1975) to be Late Silurian.

DISCUSSION : The occurrence at Mitta Mitta is represented by the external mould of part of one small specimen. It is tentatively assigned to the genus *Hippocardia* because of the presence of what might be a hood on the edge of the body. In terms of size and the nature of its external sculpture, it would appear to resemble *H. angelicum*.

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